Propulsion  (Ft. vaguely related memes)

Knowledge Base for RC Plane Electronics

Dhipak Bala/DBF 2016
Old-> New

- Nitro-> Electric
  - Balsa planes in Talbot
  - Power # Rating

- Important #'s
Motors!!
SO MANY NUMBERS
Motors

- KV Rating = RPM/Volt
- 4 digit size dimension/turns on the stator
- Large bell-higher torque
- Phases
Propellers

- Diameter x Pitch
- Pitch-think Jello (per-revolution distance) High Pitch=high speed low power (longer acceleration time)
  Low Pitch=Low speed high power (quick acceleration)
Thrust:Weight

- A roundabout way of determining thrust requirement
- Small range of Thrust/Weight ratios will determine flying envelope
- Generally, 1:1 thrust to weight will get a plane off the ground (benchmark for RC)
Antonov An225 Mriya

Thrust/Weight=.234

https://en.wikipedia.org/wiki/Antonov_An-225_Mriya
https://www.youtube.com/watch?v=agUF8G_QluY
https://www.youtube.com/watch?v=coDH-QQN16M
ESC

- Set of MOSFET’s that vary voltage through PWM signal
- Signal provided by receiver
- Power the receiver brick through BEC (We need an external battery)
Batteries

https://www.youtube.com/watch?v=yzBFCufUDqo

No LiPo’s?????
NiMH Batteries

- Voltage/Capacity
- Usually heaviest electrical component on RC planes
Other cool stuff

- https://www.youtube.com/watch?v=akoJ2zBwX1o
- https://www.youtube.com/watch?v=0y22mV2smkA
- https://www.youtube.com/watch?v=Oix6sHKzOLU